Ventral Abdominal Approach for Laparoscopic Ovariectomy in Horses

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ABSTRACT

Objective: To report a ventral abdominal approach and technique for laparoscopic bilateral ovariectomy in horses.

Study Design: Prospective.

Sample Population: Eleven mares and four mules, ranging in age from 5 months to 18 years were used in this study.

Methods: A triangulation technique with a single laparoscopic portal and four instrument portals were used for ventral abdominal laparoscopic ovariectomy. Laparoscopic instruments were used to maneuver and secure each ovary through a ligating loop (modified Roeder knot) that was secured from outside the abdominal cavity. Minimal enlargement of one instrument portal was used to remove the ovaries.

Results: Operative time, defined as the time from laparoscopic insertion to removal, ranged from 20 to 90 minutes. The mean operative time of the last seven animals was 26 minutes. Signs of estrus were observed in two mares within six months after ovariectomy.

Conclusions: The reported technique allowed decreased tension on the tissues during ligation and removal of each ovary from the peritoneal cavity. Improved observation of the abdominal cavity, ligation security, shortened patient confinement time, and minimally invasive technique are all considered to be benefits of laparoscopic ovariectomy.

Clinical Relevance: The ventral abdominal laparoscopic approach permitted efficient and safe ovariectomy in foals and adults.

Laparoscopic Adhesion Model in Horses

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ABSTRACT

Objectives: The purpose of this study is to develop a laparoscopic model to create adhesions that can be introduced while the horse is standing under sedation. The resulting adhesions can be evaluated on subsequent surgeries without euthanizing the horse.

Methods and Procedures: Seven horses, ages 3-30 years, were selected for this study. The horses were sedated while standing in stocks. The abdomen was insufflated to an intra-abdominal pressure of 15 mm Hg with CO_2. A laparoscope portal was placed into the right paralumbar fossa. Two instrument portals were placed so that they formed a 6 cm equilateral triangle with the laparoscope portal. Two simple interrupted sutures were placed into the medial serosal surface of the duodenum where it passes over the base of the cecum. Using grasping forceps, the tissue at these sites was crushed for two minutes and the blood vessels supplying the tissue at these sites were occluded for three minutes. A subsequent laparoscopic exploratory was performed 3-5 days later to evaluate adhesion formation.

Methods and Results: Adhesions were created in 5 of 7 horses. The site of adhesion was either between the base of the cecum and the duodenum or between the dorsal body wall and the duodenum. The intestines continued to function normally in all horses.

Conclusions: Adhesions can be introduced and evaluated consistently in the standing horse using this model. Follow-up studies are necessary to more accurately quantify the reproducibility of the model.

Laparoscopic Removal of Cystic Calculiin in Three Horses

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ABSTRACT

Objectives: To describe a technique for laparoscopic removal of cystic calculi in horses.

Methods and Procedures: Three geldings, ages 6 - 19 years, presented to Washington State University Veterinary Teaching Hospital for removal of cystic calculi. Each horse was placed under general anesthesia and positioned in dorsal recumbency on a table and tilted approximately 30 degrees in a head-down position. A laparoscope portal was placed in the umbilicus. Five instrument portals were placed in positions lateral to the prepuce and the base of the penis. The bladder was visualized through the laparoscope and incised using electrocautery. The calculus was retrieved using large grasping forceps and placed in a sterile specimen bag, which had been pre-positioned within the abdomen. The bladder was lavaged and sutured in two layers. All instruments were removed, and the specimen bag containing the calculus was removed by enlarging the laparoscope portal. Each horse recovered from anesthesia in a large animal recovery pool.

Results: Each horse recovered uneventfully from anesthesia and regained normal function of the urinary bladder and urinary tract. Each horse is currently healthy and showing no signs of urinary dysfunction.

Conclusions: This technique permits excellent visualization of the bladder in its normal anatomic position allowing for tension-free manipulation of tissues and a secure closure. This procedure provides an alternative approach for equine surgeons that is less invasive than traditional approaches.

Rectal Examination: Improved Skills through Laparoscopy

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ABSTRACT

Objective: Rectal palpitation is a vital part of any physical exam involving the equine abdomen. Identification of abdominal organ abnormalities is one of the most important diagnostic determinants for surgical intervention of equine colic. Presently, publications describe the consistency and texture of equine abdominal structures, but there is no substitute for real time viewing. The use of laparoscopy to coordinate the hand and mind during rectal examination of normally palpable structures within the equine abdomen is demonstrated in this presentation.

Sample Population: Two clinically normal horses (one mare and one gelding) were used in this study.

Methods: After insufflation of the abdomen with carbon dioxide, videolaparoscopic examination of the abdomen was performed on each horse.

Results: A systematic digital examination of the following structures was performed: uterine body, uterine horn, ovaries, bladder, left and right inguinal rings, left dorsal and left ventral colon, pelvic flexure, spleen, nephrosplenic ligament, aorta, left kidney, small colon, body and ventral band of the cecum, and duodenum. High quality video recordings of the laparoscopic pictures were edited to maximize viewing value.

Conclusions: Rectal examination is one of the most valuable skills an equine practitioner can possess. Unfortunately, it is also one of the most difficult to learn as well as teach. Videolaparoscopy provides the opportunity to link visual, tactile, and mental images of important structures in the normal equine abdomen. ■